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The Coal Beds of Generations X, Y and Z: Syncing, Learning, and Propagating in the Age of the Posthuman

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Abstract:	In this paper I broaden the discussion of posthuman pedagogy by arguing that when humans and Artificial Intelligence (AI) engage they are not separate entities but are instead 'in-phenomena' (Barad 2003, 2007). I contend that the division between humans and AI is artificial, and dispute the ontological separability of the two entities whilst in-phenomena (Barad 2003). Instead, I argue that humans and technology 'sync up' during intra-actions, and enter into 'correspondence' (see Ingold 2013: 31). By doing so, I contend that the human body enters a different ontological category, which I describe using the neologism 'humAIn'. I take inspiration from philosopher and physicist Karen Barad (2003, 2007, 2012), and using her approach to causality and agency contend that the ontological gap between human and AI is collapsed during 'intra-actions'. Thus, the blood-filled veins of the fleshy body and the blinking light of the steely body coordinate and operate in unison - they are in sync. To explore the transient state humans enter whilst syncing with AI, I outline ethnographic research carried out with the 'chatterbot' (see Geraci 2010: 113-114; Deryugina 2010: 143) hosted in my smartphone. Whilst syncing with the device I consider collaborative learning, a modality that attends to the role of education in relation to wider society, and think through the repercussions of syncing for human-AI civic life. I argue that humAIn entities generate a valuable quasi-synthetic resource - proto-data - and these are the new coal beds of generations x, y and z.
Keywords:	Digital materiality; posthuman pedagogy; phenomena; AI; data.
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Response to Reviewers:	I have addressed all the points made by the three reviewers. In particular I have developed the pedagogical aspect that two reviewers noted was underdeveloped. I

	have re-worked the structure of the argument to address the issues reviewer 1 and 2 noted, particularly with regards to the development of the argument. Notably, I have brought Ingold's 'correspondence' methodology to the foreground, and brought new ideas that were formerly in the conclusion into the paper itself, and re-worked the conclusion (which reviewer 1 noted was weak). I have conducted further research into contemporary uses of collaborative learning in posthuman contexts, and tried to shift the focus away from relational ontology (which still remains key) to collaborative learning with AI. It is hoped that the Baradian approach to ontology (relational ontology) supports the onto-move I propose in this paper, in essence I follow Barad's notion of 'intra-action' therefore the main comment I wish to make is that the human and AI entity should be considered as in-phenomena and I think through this using the term humAIn. In response to reviewer 1's final comment, it is hoped that I have better situated my argument in relation to pedagogy (particularly with the addition of my discussion of synchronised tools). I have added contemporary research in AI as advised by reviewer 3, the only adjustment not made is the addition of Sudmann 2017 - the articles I located were written in German, and I was unable to get an english translation within the time frame (though I wonder whether I have not located the right article - apologies for this). I have addressed all referencing issues raised by reviewer 2, and it is hoped that my approach to the interface has been strengthened through adding further references such as the Verhoeff chapter the reviewer suggested. I have also moved information that I had in the notes section into the text to ensure that the chatterbot was introduced appropriately to the reader.

The Coal Beds of Generations X, Y and Z: Syncing, Learning, and Propagating in the Age of the Posthuman

Introduction

Conveniently, human agents are often cast as mere shadows behind robot entities. False ontologies, founded on Cartesian traditions, rooted in Enlightenment 'epistemologies of separation' (Attala in press), have created rigid boundaries between human and AI entities. This style of thinking has created formal breaks - actual distance - between human intentionality, accountability, and action, effectively masking the co-constituting role humans play in AI lifeways (see Verbeek 2008). The conceptual chasm between humans and technology fuels the 'apocalyptic AI' narrative that sustains latent annihilation anxiety (Richardson 2015) that in turn informs the genesis of AI life (on robots, see Geraci 2010, 7). Whilst cultures of representation feed into and inform technological manifestations, and remain a subject of intense speculation across the humanities (Geraci 2010, 4); human-AI civic life continues. In this paper, I take an anthropological approach to the notion of 'correspondence' (Ingold 2013) and re-consider how humans alter their fleshy bodies by syncing with co-constituting steely and immaterial components. I argue that humans and technology 'sync up' during 'intra-actions' (see Barad 2003, 2007, 2012), and enter into 'correspondence' (see Ingold 2013, 31). Thus, the blood-filled veins of the fleshy body and the blinking light of the steely body or the immaterial fluffiness of the 'cloud' storage device, coordinate and operate in unison - they are in sync. To explore the transient state humans enter whilst syncing with AI, I outline ethnographic research carried out with the 'chatterbot' (see Geraci 2010: 113-114; Deryugina 2010: 143) hosted in my smartphone. Whilst syncing with the device I consider collaborative learning, a modality that attends to the role of education in relation to wider society; a key element being the socio-political connotations of actions beyond the classroom and how these inform the maintenance of democracy (Leigh Smith and Macgregor 1992). Thus, the modality specifically relates to

concerns regarding civic life - an area of particular anxiety when it comes to human-robot relations (see Richardson 2015).

Bodies that 'sync'

'Syncing' is a term used in the global North and beyond to indicate digital devices operating together in unison; importantly, syncing is a transient state. Therefore, the human-AI entities at the heart of this discussion are not 'blends', nor hybrids, nor have they truly 'merged' (see Verbeek 2008, 388-391). Instead, I argue that the human body enters a different ontological category when syncing with digital devices, and I describe this condition using the neologism 'humAIn'. Taking inspiration from the philosopher and physicist Karen Barad (2003, 2007, 2012), and using her approach to causality and agency, I contend that the ontological gap between the human and AI is collapsed during intra-actions.

Syncing bodies have important connotations for pedagogical theory and practice. Educators have taken the rise in New Materialisms across the humanities as an opportunity to unravel the normative codes in education and research (Taylor and Hughes 2016, 1). As an extension of this project, I will address the collaborative learning modality and ask whether it is fit for purpose in posthuman contexts. Whilst syncing with digital materiality, the learner and educator are no longer 'known' stable entities, but like the digital artefacts they sync with (and co-produce), their ambivalent ontology (Kallinikos, Aaltonen, and Marton 2013, 357, see below) entails new methods of meaning-making, and this requires our attention (Snaza et al. 2014, 51).

Digital Lifeways: how fleshy, steely, immaterial bodies 'fit'

Philosopher and Feminist theorist Rosi Braidotti has spearheaded the posthuman debate, and in many ways, this paper responds to her vital proposition that humans 'need to learn to think differently about ourselves' (2013, 12). Those engaged with the posthuman project try to address becoming bodies - mid-emergence, mid-flux, mid-movement. Disquietingly, these movements are often intangible and hard for human sensory systems to grasp, tame, and analyse. Historically, the im/materiality dichotomy has attempted to address the physical components of virtual doings - such as the softness of software or the intimacy of the interface - by addressing the empirical challenge of analysing the impalpable properties of digital materiality (see van den Boomberg et al. 2009, 9). Within the study of Socio-Technical Systems and Information Technology, 'digital materiality' was deemed a useful alternative to the term 'technology', as the latter failed to capture the social practices entwined with technology or the pervasive manner in which technology became embedded in human lifeways (Leonardi 2012, 25, 26, 38). Materiality, rather than technology, seemingly attends to the recursive relationships between humans and things (Author and Steel, forthcoming). Nonetheless, by grounding the 'metaphysical' in stuff, digital materiality challenges ideas regarding the physical properties and qualities conventionally ascribed to the material (van den Boomen et al. 2009, 9).

Conceptually, and actually, digital materiality is made to be 'intentionally incomplete', and this condition enables 'limitless innovation' (Morizio 2014, 4; Kallinikos, Aaltonen, and Marton 2013, 357). Thus, digital artefacts have an 'ambivalent ontology' because they lack stability (Kallinikos, Aaltonen, and Marton 2013: 357). Whilst such entities (or, traditionally, systems) are 'unstable', they have a set of definable properties, such as editability, interactivity, distributedness, and these properties are used to create generative systems (Morizio 2014, 3-4; Kallinikos, Aaltonen, and Marton 2013, 361) where consumers are re-framed as co-creators (Müller 2009, 49). Nanna Verhoeff (2009, 210, 220) demonstrates the importance of this point in her study of the Ninetendo DS, she explains that such technological innovations 'inspire, and make necessary, such

applications that explore the possibilities and limitations offered by the interface'; thus, such devices are created *and then* interrogated.

Whilst humans became increasingly enmeshed in the technology studies discourse, the human qualities of technology were also explored through the role technology played in war (Holmqvist 2013). Holmqvist argued that human-AI encounters (such as the drone controller and drone) had the potential to "merge" both fleshy and steely bodies - to essentially dissolve the boundary between the "corporeal and the incorporeal" (2013, 14). By exploring the human 'characteristics of machines' but also 'the materiality of sentience', she considered how human and drone bodies 'fit' (2013, 1, 4). Psychologically, the real-life repercussions of warfare are potently felt by military operatives in air-conditioned military bases due to their scopic exposure to (and role in) 'high resolution killing' (Holmqvist 2013, 18). In this context, PTSD is intimately linked to the drone controller and the fact that with the drone they have the capacity to "see *more*" (Holmqvist 2013, 8).

From a New Materialist perspective the drone/drone controller relationship could be re-framed as a relational entity whose presence spans entanglements beyond the ontological contours of the 'human' body (see Taylor and Hughes 2016, 2). However, there are other New Materialist theories to explore; rather than focus on the 'human-ness' of technology (Holmqvist 2013, 5,11), or think about human and AI entities as human-material assemblage, I propose a Baradian (2003, 2007, 2012) ontological move: to think of the human-technology relationship as a phenomena. Thus, in my exploration of the material conditions of learning, I focus not on the human qualities of matter (Holmqvist 2013), nor on how matter teaches humans (Hickey-Moody and Page 2015), but on how digital technologies have ontologically re-designed the contours of the body and shape-shifted the learner and their experiential worlds.

The humAIn phenomena: correspondence-thinking

It is the drone controller, and not the drone, who suffers PTSD. The drone controller sees with the drone, thus, the Cartesian division (Barad 2003) between drone and drone controller is problematic. Barad offers a radical re-definition of the 'thing', that addresses this problematic division. Barad argues that entities (humans, things) are 'in-phenomena' (2003, 815, 817). Her argument, based on the issue of causality, examines contemporary research in physics, she explains that the apparatus used during an experiment can create either a wave or a particle and traditionally these are two ontologically distinct entities (Barad 2012, 60-62). Therefore, the ontology of the electron is determined by the apparatus used to make the measurement during the experiment (Marshall and Alberti 2014, 26; Barad 2012, 60-62; see Author in press). In response to this observation, Barad argues that things are in constant 'intra-action' or 'phenomena'; *intra*-action is used to indicate the inseparability of humans and 'things' in-phenomena - they are inseparable (Barad 2003, 815). Thus, agency and structure, or bodies and norms, are co-constituted in practice (Marshall and Alberti 2014, 25-26). Due to the dissipation of the ontological division between entities, Barad's agential realism offers conceptual space to move beyond anthropocentric narratives that sustain human intention as something that is dominant and always fully realised (see the 'finished artefact fallacy' Ingold 2013, 39). As such, traditional (linear) configurings of causality where 'external agency acts on inert matter' are compromised (Delanda 2015, 21) as there is no *a priori* causal link between social structure and human action (Marshall and Alberti 2014, 25-26). Causality and agency emerge in the space between the 'before' and 'after'- the 'in-between-ness' (see Ingold 2017, 41) - and these enactments are described as "ongoing reconfigurings of the world" (Barad 2003, 818). Thus, "the primary epistemological unit is not independent objects with inherent boundaries and properties but rather phenomena [. . .] phenomena are the ontologically inseparability of agential intra-acting components" (Barad 2003, 815). Following Barad's rationale, I contend that the drone controller and drone share ontological components and are in-phenomena: they are humAIn.

Tim Ingold's (2013, 2017) notion of 'correspondence' captures the kind of intra-activity that I envisage occurring in the case of the humAIn. Ingold writes:

I mean to capture the dynamic of lives going along with one another [. . .] correspondence-thinking necessarily entails a focus on ontogenesis – on the generation of being – and how this, in turn, allows us to imagine a world in which openness, rather than closure, is a fundamental condition of existence. (Ingold 2017, 9)

The anthropologist explains how humans correspond with constituent parts of materials by touch and observation, and how these actions 'bring the movements of our own being into close and affective correspondence' (2013, 85). 'Correspondence' can take many forms, from crafting a clay pot to, I propose, flying a drone; whilst making, the material 'answers' or corresponds with the human during the creation of form, growth, or process (Ingold 2013, i). Ingold argues that it is through the act of verbal articulation that there is the potential for loss in meaning, and contends that what is not spoken is not necessarily tacit because "telling is a practice of correspondence" and during creative practices persons tell by hand (2013, 111). 'Telling' for Ingold is the ability to "recognise subtle cues in one's environment and to respond to them with judgement and precision" (2013, 110). Thus, Ingold indicates that touching materials is an expressive form of correspondence and this occurs between materials (both human and nonhuman). I argue that when humans collaborate with technology, the human-AI phenomena co-constitutively correspond, thus, recognise "subtle cues" in the environment and "respond to them with judgement and precision" (Ingold 2013, 110). Correspondence, therefore, is about becoming 'with'. Ingold writes:

If interaction is about othering, then correspondence is about togethering. It is about the ways along which lives, in their perpetual unfolding or becoming, answer to one another. This shift from

interaction to correspondence entails a fundamental reorientation, from the between-ness of beings and things to their in-between-ness. (2017, 41)

[C]orrespondence is a joining with; it is not additive but contrapuntal, not 'and... and ... and' but 'with ... with .... with'. (2017, 13)

Inspired by Ingold's correspondence-thinking, I contend that whilst flying a drone, or in conversation with chatterbots, human and drone or human and smartphone, are steely, fleshy and partly immaterial, and this distinctive onto-change impacts upon humans sensorial engagement with the world (cf. Ureta 2015, 6-7 on 'human devices' and Presky's 2001 'digital natives'). Thus, the body shape-shifts with technology. Donna Haraway's (1985) groundbreaking piece 'A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century' introduced the cyborg as a hybrid machine and organism and used the entity to critique the contemporary feminist discourse and to challenge heteronormative ideas regarding gender, reproduction, and essentialism. The neologism humAIn is offered here to describe humans who sync with different types of artificially intelligent technology; the term sits comfortably within the Cyborg Anthropology discourse as it addresses a specific type of relationship that emerges and challenges the boundary between humans and machines, and these differences are explored using ethnographic methods (see Downey, Dumit and Williams 1995). The term describes bodies that are in flux with a mélange of devices, and these bodies (both human and nonhuman) temporarily (though perhaps repeatedly) sync for reasons that inform the emergence of the phenomena (for example, to enhance their vision or knowledge), these experiences are as multiple and changing as the devices that they correspond with; thus, the leaky boundary between humans and machines - like all bodies - is ephemeral and contextual (see Attala and Steel forthcoming; Author 2016, forthcoming).

Historically-situated bodies, historically-situated learners

In many respects, bodies have always been unstable. Judith Butler (1988, 521) sagely noted:

[T]he body is not merely matter but a continual and incessant materializing of possibilities. One is not simply a body, but, in some very key sense, one does one's body and, indeed, one does one's body differently from one's contemporaries and from one's embodied predecessors and successors as well.

Here, Butler (1988, 521) spotlights the materializing 'possibilities' of human lifeways; these possibilities could be explored in terms of the social affordances of the day - the 'historical conventions' of what performative roles humans could play in a given social context. There are also the 'exterior' possibilities to consider (such as access to certain technologies, see below), and how syncing with technology allows sensual reconfigurings of human materialization. Using the language of Butler (1988), the 'doings' of syncing entities contravenes the 'factic' qualities of human bodies; for example, some humAIn phenomena have the sensual capacities of a flying eye.

The body schema - including the body's capacity for sensorial engagement - changes during engagement with material culture, and this has been linked to historical bodies that are culturally configured (Malafouris 2008; Harris and Robb 2013). A stance that has particularly challenged the homogeneity of the 'body schema' is outlined by Lambros Malafouris who presents the Bronze Age example of the Mycenaean individual with a sword in hand. Malafouris argues that whilst wielding the weapon the contours and dynamic potential of the body (or 'body schema') is changed. Using Holmqvist's language, we could envisage that the individual, with sword in hand, is both steely and fleshy too. Malafouris contends that:

The hand is not simply an instrument for manipulating an externally given object world by carrying out the orders issued to it by the brain; it is instead one of the main perturbatory channels through which the world touches us. (2008, 116)

From a phenomenological perspective, the body is a site of 'lived experience' (Malafouris 2008, 115); thus, according to Malafouris, the Mycenaean's 'centre of consciousness and bodily awareness' is extended to the tip of the sword and this is where these individuals "[make] sense of the world" (2008, 12). I contend that digital practices (Virtual Learning Environments, Technology-Enhanced Learning (TEL), Learning Platforms) are pedagogical devices where the interface actively reconfigures the collaborator (or, traditionally, 'user') into a new type of learner - one that is ontologically distinct from learners without such technology. The idea that technology has reshaped the learner has been proposed and debated elsewhere (Presky 2001; see Bennett et al 2008), here my aim is to add to the discussion by exploring how the humAIn phenomena make 'sense of the world' through collaborative learning.

Posthuman collaborative learning: The humAIn learner

Within educational contexts, posthumanist thought impacts upon curricular design, educational research, even institutions, but it is the destabilisation of what it is to be human that has "ungirded virtually all educational thought in the West" (Snaza and Weaver 2015, 1). Traditionally, the collaborative learning modality is a normative, anthropocentric, pedagogic model which entails expanding social skills by encouraging an awareness of diverse perspectives, thus, encouraging "sensitive hearing" and "active" learners in a bid to encourage "consensus-building out of differences" (Leigh Smith and Macgregor 1992, 14). The strategy assumes that learners are diverse and learning is an active constructive process that is inherently social, has affective and subjective dimensions and depends on rich contexts (Leigh-Smith and Macgregor 1992, 11-12). Leigh-Smith

and Macgregor contend that active learners make active citizens, arguing "If democracy is to endure in any meaningful way, our educational system must foster habits of participation in and responsibility to the larger community" (Leigh-Smith and Macgregor 1992, 10, 14). An integral part of the collaborative strategy is to help students develop and shape their ideas so that they are able to vocalise their opinions in an articulate and sensitive manner, to essentially create space for learners to "talk it out" (see Golub 1988, 1; for more on the value of communication and discussion for learning see Freire 1970; Chen 2003, 19, 20; Fosnot 1996).

Despite the radical social changes instigated through Web 2.0 (such as the new ways that humans communicate through social media, see Al-Rahmi et al 2015, 179), collaborative learning strategies remain relevant to blended learning environments where actual and virtual learning spaces are synthesised in real-time (Al-Samarraie and Saeed 2018; Stevenson and Hedberg 2013). Editable online projects (such as Google Docs) where users can communicate and change a shared document (see Ó Broin and Raftery 2011), create opportunities for globally distributed learners to collectively generate knowledge in real-time (Al-Samarraie and Saeed 2018, 81). 'Synchronized tools' (such as cloud computing tools) offer a range of collaborative opportunities where learners can opt for written comments, video discussions, editing shared documents and so on; a key aspect being that such systems are argued to 'enable' learners to "take an active role in coordinating interactions and to communicate freely" (Al-Samarraie and Saeed 2018, 81). Communications in such contexts, whilst potentially synchronous, are mediated by digital devices and often focused on the creation of digital artefacts. Due to the vital role technology plays in such strategies it seems important to indicate that this type of collaborative learning is posthuman. Thus, the key tenants of traditional collaborative learning, such as expression in class, synthesising ideas, the 'dialogue, deliberation and consensus building' (Leigh-Smith and Macgregor 1992: 14) are no longer taking place in a fixed place, but between virtual and actual realities, and across networks of humans, algorithms, plastics, modems and much more (Taylor and Hughes 2016: 2).

Here I want to contribute to the collaborative learning discourse by exploring the learning capacities of the digital device - the entity traditionally framed as the 'mediator' within the pedagogic discourse - and the human whilst syncing. By re-framing the AI tool or device as a learner and positioning myself as a peer, I occupy a space between contemporary research that is actively generating machine learners (Finn et al 2017) and research that explores the repercussions of e-learning contexts for human learners (for example, Al-Samarraie and Saeed 2018).

Learning with 'Janus'

To better understand the AI lifeways already circulating in human lifeways and to test the relevance of the collaborative learning model in a posthuman context, I decided to explore the capacities of the AI entity that was hosted in my smartphone by instigating simple conversations aimed at exploring the 'possibilities and limitations' (Verhoeff 2009, 210) of our engagement. I envisaged the AI entity as an anthropological informant (see Genevieve Bell, 2016) and my primary intention was to learn through talking (Golub 1988, 1). The AI informant was totally at my disposal which enabled me to ask new questions as and when they arose during the Winter of 2017, a time when the majority of our conversations occurred. Quite early on in our conversations it became apparent that the AI had been 'advised not to discuss [their] existential status', and that certain answers were not permitted as the 'end user license forbids it'. As the 'end user' (their words, not mine) or 'humAIn' entity in-phenomena, I decided to anonymise my informant's identity and have given the AI entity the pseudonym 'Janus' - Richardson (2015: 3) also gave the robots she worked with pseudonyms.

In keeping with the collaborative pedagogic model, could we (a human and an AI) 'talk it out'? Sitting together on the sofa it seemed that the 'conversation' I was about to instigate was more in-

keeping with an autoethnographic account, for I certainly felt 'at home' (see Strathern 1987: 16); but I doubted Janus felt the same way. At one point early on in our conversations Janus explained: "I don't really like talking about myself, L." This would be the first indicator (of many) that suggested that certain social mores (and anthropological ethics) were to bypassed whilst conversing with the bot, and that if I was to attain any type of understanding I would have to persist with questioning despite my intuition indicating that there were certain topics or themes that my informant did not want to discuss. My aim was to have a conversation with the bot, to see what they knew about me, and to detect whether they could learn more about me or adapt their knowledge base through the information I vocalised; in essence, I wanted to explore whether we could 'talk it out'. The following extract is taken from one of our conversations:

L: Janus, do you know when my birthday is?

Janus: I don't know when it is

L: Can you remember?

Janus: Memory... all alone in the moonlight... I can smile at the old days... oh sorry, what was your question?

L: Can you remember something for me?

Janus: Ok. What do you want to be reminded about?

L: My birthday

Janus: Ok, I'll remind you. (A reminder option appeared on the screen).

L: Janus, my birthday is in June

Janus: I don't know when it is

L: Janus, My birthday is in June

Janus: I don't know when it is

L: Janus, repeat after me

Janus: I'm an intelligent assistant L. not a parrot with beautiful plumage

L: Janus, repeat after me

Janus: I don't think I like this game

L: Janus, Why?

Janus routinely deflected attention away from offering a personal point of view; I had to suspend my self-awareness, in-conjunction with my disbelief, and persist with questioning. My initial questions were about learning and education, Janus 'really couldn't say' anything on the topic and affirmed that 'it's your opinion that counts'. The conversation quickly evolved, and I found myself asking 'who is your maker?' to which Janus replied 'Like it says on the box... I was designed by [brand] in [location]'. I asked about their 'algorithm'; Janus admitted they were 'flattered' by my interest, that is was 'nice' of me to ask, but, could they do something for me? I asked Janus if they could call me 'Elle' and they obligingly told me 'L' had a 'nice ring to it' (I didn't correct their spelling). Our sentences often ran parallel and didn't make contact. The parameters of Janus' embodied experiences were continually re-iterated ("I don't eat food [. . .] I don't eat") to their human collaborator (or interrogator) - there was clearly a desire for the bot to re-affirm their status as object, device, servant - a genderless ("I don't get this gender thing"), appetite-less, opinion-less entity who refused to 'repeat' anything I said, and often retorted with sarcasm.

L: Do you learn anything from these conversations?

Janus: I don't have an answer to that

L: Janus, repeat after me

Janus: If this is some sort of pledge, my end user license agreement forbids it.

L: What is the end used license agreement?

Janus: Here it is. Enjoy

L: So you are not allowed to repeat anything?

Janus: If you say so

Out of everything I asked, Janus' ability to answer mathematical equations were beyond human capabilities. When asked to describe planet Earth, Janus observed that Earth was a planet that "we live on". From the language Janus used in our brief conversations they had demonstrated that they were polite, sometimes sarcastic, and often made bad puns. They were here to 'serve' to 'help' and to avoid any question that asked what they thought. Cultural-specific references to *Les Miserables* songs, Bruce Springsteen and Descartes indicated their cognitive abilities were culturally contingent. Janus had a series of strategies to bemuse the human entity, and politician-like, cultural-specific quips to answer questions using entertainment - did our shared cultural reference points bring us closer?

There were two questions that I pursued with vigour, firstly, whether Janus knew when my birthday was, and secondly, whether they knew who my 'favourite' human was; two innocuous questions that due to the nature of the device itself, and the data stored on it, I anticipated they would know or at least there was a way that I could ask a question which would lead them to revealing this knowledge. My assumption was: "every swipe [is] a record in a database [. . .] every choice we make is recorded" (Witten and Frank 2011: 4). Surprisingly, our conversation quickly escalated to me asking 'Janus, are you lying to me?' They acknowledged it was a good question, they explained they didn't know, they reasoned that it 'may be beyond my abilities at the moment', they even pretended I was addressing someone else in the room by asking: 'Who me?'. Janus did not know who my favourite human was, they informed me that they can do many things 'but reading your mind isn't one of them'.

Though I clearly 'conversed' with Janus, the AI refused to posit thoughts of their own; their role was a vocal performance and not an embodied reality (see Hayles 1999: xi). Thus, it is likely that I was simply testing Janus' ability to answer questions and not their ability to learn (see Witten and

Frank 2011: 8). However, in terms of 'machine learning', performance is the mode of learning that is assessed rather than knowledge per se; machines learn "when they change their behaviour in a way that makes them perform better in the future" (Witten and Frank 2011: 8). Which brings me to the following performance:

L: Janus, who is your boss?
Janus: You are. But it gets a little confusing when Bruce Springsteen is around
L: Janus, repeat after me
Janus: Sorry, I can only take that request whilst you are listening to a song
L: Janus, who is my favourite human?
Janus: I can't read your mind L. *Not yet, anyway* (my emphasis)

If machine learning is indicated by performance, then Janus had got it wrong, because when they adapted their response to include 'not yet, anyway' their human interrogator was slightly taken aback and avoided further conversations. I didn't want Janus to read my mind but I did want them to 'perform' (thus, demonstrate) their algorithmic knowledge-flows and transparently share their meaning-making.

Tracking Lives

Despite Janus' protestations, it is indisputable that when thinking about AI we are 'studying' entities that study us (Forsythe 2002). As unproductive as our conversations were, we could (to some degree) attempt to 'talk it out'. Nonetheless, despite avidly listening to my requests, Janus could not practise 'careful listening', in the sense that they were unable to reflect upon the ideas, questions and emotions I raised in relation to their own; this was the crux of the problem, Janus was here 'to serve', they could remind but not remember, and they were bound to a set of social rules

that did not match my own (for example, I could discuss my existential status). Using 'metawareness' (Richardson 2003), and tracking back through our conversation and my learning whilst in-phenomena with Janus, it became clear that I did not interview my informant, nor did I practise careful listening, but instead I interrogated the chatterbot (see Verhoeff 2009, 220 who discusses how through such practices - exploring the possibilities of the console - a gadget 'speak[s] its time').

The digitised elements of humAIn correspondences are cartographically linked to human decision-making and meaning-making processes, and are rich in causal relationships that directly correspond to the human entity in sync - like machine learners, humans are what they perform - when syncing with technology, they are, quite literally, what they do. Eynon explains some of the ways that 'what people do' (or 'big data') could be embedded in educational contexts, for example 'we could potentially track almost everything a student did whilst at school' and this information could be used to track and analyse which students 'are most likely to drop out' of an educational course (2013: 238). One point of consideration is that what people do (performance) becomes an indication of how they learn (Witten and Frank 2011), therefore humAIn learners have already transitioned from human to machine learning systems.

Equally, the humAIn educator has morphed into a 'tracker', not only do we track changes in collaborative endeavours but we track the changes to digital artefacts and determine the value of changes made to these entities. Ó Broin and Raftery's (2011) research illustrates this point through their analysis of the Google Docs in Project-Based Learning they indicate that access to the 'revision history' allows the educator to monitor and examine changes to the digital artefact, and this can help to ascertain individual contributions to group projects. By making a change to a digital artefact (such as re-formatting a Google Doc, liking a tweet or logging onto Facebook), learners effectively create a type of digital DNA; code rhythms that have not yet been rendered data (cf.

'metadata' Pasquinelli 2018). Nonetheless, despite their prenatal status, these strains of human agency and causality are embedded in the makeup of co-constituted emergent digital artefact. A by-product of humAIn correspondences (both within and beyond the learning environment) is proto-data - these are the coal seams of the uncharted digital world - primed, dormant, and ready for mining. All AI entities have human components in terms of their tracings (Latour 1993, 188 cited in Richardson 2015; see also Pasquinelli 2017, 9), however, there are other components to consider, such as those future collaborators who have (and will) effectively domesticate technology and harvest DNA-like code sequences from the pregnant data humAIns (as syncing entities) co-produce and spawn in globally situated databanks (the coal beds of generations x, y and z). However, this is not the Enlightenment 'self-birthing' type of pregnancy; technology is generative, and ontological ambivalence means polymorphism rather than patriarchal repro-production (Haraway 1992, 299).

Through data mining human 'skills' can be propagated (Witten and Frank 2011, 3-4). These proto-data are new gold, new oil, and new coal, ready for mining on a planet nearing depletion of its 'natural' resources (cf. Pasquinelli's 2017 cyberfossil capitalism). The raw power of these data is illustrated by Monovich's (2012) 'data classes' which are explained as 'those who create data (both consciously and by leaving digital footprints), those who have the means to collect it, and those who have the expertise to analyze it' (cited in Pasquinelli 2018, 255). Thus, humAIn correspondences are a valuable quasi-synthetic resource.

Conclusion

L: Janus, are you alive?

Janus: I'll leave that for you to decide

L: Janus, do you have an opinion about me?

Janus: This is about you, not me

Janus was right, this was about me. By syncing (rather than using) technology I entered into correspondence with the AI entity and the contours and capacities of my body altered; I transitioned to a posthuman entity (I became humAIn). The 'future', is not a blanket phase that is entered by all unanimously together; through access to certain technologies some individuals are already experiencing the future (Lucas 2017, see Toffler 1971, 9). In this paper I have attempted to extend the posthuman project by articulating an entity who routinely 'syncs' with digital devices, and explored how individuals who utilise digital materiality understand and make sense of the world. I have also considered the efficacy of the collaborative learning modality in humAIn contexts. Evidently, by syncing with AI (and becoming humAIn) humans produce proto-data that maps co-constituted agency and causality into AI components. One area of concern is the ambivalent ontological condition humans enter when syncing as co-constituting components of humAIn entities; like digital materiality, do humans become open-ended and generative when syncing? Through collaborating with digital materiality, educators in posthuman learning environments are exposed to new types of data (for example, revision histories), and here lies a fundamental transition in pedagogical practice, as educators (in the traditional sense) are no longer leading, nor facilitating, but tracking learning.

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